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BALLISTIC ELECTRONS IN AN INHOMOGENEOUS SUBMICRON
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H U BARANGER ET AL. 1980 TR-5

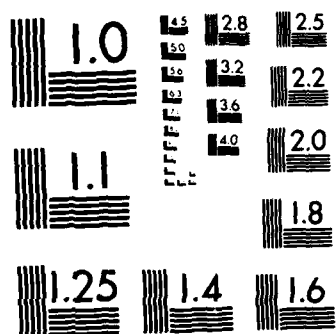
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BALLISTIC ELECTRONS IN AN INHOMOGENEOUS SUBMICRON STRUCTURE:
THERMAL AND CONTACT EFFECTS

by

Harold U. Baranger and John W. Wilkins

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Ballistic Electrons in an Inhomogeneous Submicron Structure:

Thermal and Contact Effects

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ABSTRACT

For a simple submicron semiconductor structure, we have calculated exactly the electron distribution $f(v,x)$ within a relaxation-to-local-equilibrium assumption for the collision term of the Boltzmann equation. Large applied voltages produce a substantial ballistic peak in $f(v,x)$. But at all voltages contact inhomogeneities and local heating (and cooling) produce an I-V characteristic only weakly dependent on the scattering rate.

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